1. Solve the equation for x and choose the interval that contains x (if it exists).

$$13 = \sqrt[6]{\frac{26}{e^{6x}}}$$

A. $x \in [-15.2, -12.8]$

B. $x \in [-0.4, 0.5]$

C. $x \in [-2.2, -1.3]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x - 5) + 8$$

A. $(-\infty, a), a \in [-12, -7]$

B. $[a, \infty), a \in [0, 6]$

C. $(-\infty, a), a \in [7, 11]$

D. $[a, \infty), a \in [-7, -4]$

E. $(-\infty, \infty)$

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3. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$3^{-5x-3} = \left(\frac{1}{125}\right)^{-2x+4}$$

A. $x \in [-3.4, -1.8]$

B. $x \in [4.7, 7]$

C. $x \in [0.1, 3.2]$

D. $x \in [-1.7, 0.1]$

E. There is no Real solution to the equation.

4. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-4} - 9$$

A. $(a, \infty), a \in [6, 15]$

B. $(-\infty, a), a \in [-10, -7]$

C. $[a, \infty), a \in [6, 15]$

D. $(-\infty, a], a \in [-10, -7]$

E. $(-\infty, \infty)$

5. Solve the equation for x and choose the interval that contains x (if it exists).

$$21 = \ln \sqrt[6]{\frac{22}{e^{3x}}}$$

A. $x \in [-12.97, -11.97]$

B. $x \in [-42.97, -36.97]$

C. $x \in [-9.12, -4.12]$

D. There is no Real solution to the equation.

E. None of the above.

6. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2 (x - 5) - 8$$

A. $(-\infty, a), a \in [-5.3, -3.2]$

B. $(-\infty, a], a \in [7.3, 12.2]$

C. $(a, \infty), a \in [3.8, 5.2]$

D. $[a, \infty), a \in [-9.5, -6.9]$

E. $(-\infty, \infty)$

7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-3x+7)+4=2$$

A. $x \in [-6,-2]$

B. $x \in [-12.67,-5.67]$

C. $x \in [-1.69,6.31]$

D. $x \in [-6,-2]$

E. There is no Real solution to the equation.

8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{-3x+5}=\left(\frac{1}{9}\right)^{-4x-3}$$

A. $x \in [-1.29,0.71]$

B. $x \in [2.13,7.13]$

C. $x \in [-8,-6]$

D. $x \in [-0.26,1.74]$

E. There is no Real solution to the equation.

9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(3x+7)+6=3$$

A. $x \in [-4.33,-1.33]$

B. $x \in [-89.33,-82.33]$

C. $x \in [38.33,41.33]$

D. $x \in [-79.67,-76.67]$

E. There is no Real solution to the equation.

10. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-1} - 6$$

A. $(-\infty, a), a \in [-8, -5]$

B. $(-\infty, a], a \in [-8, -5]$

C. $(a, \infty), a \in [3, 10]$

D. $[a, \infty), a \in [3, 10]$

E. $(-\infty, \infty)$